



UNITED STATES PATENT AND TRADEMARK OFFICE

Ren
UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/538,914	06/13/2005	Ulrich Schoor	R.304044	5661

2119 7590 10/02/2006

RONALD E. GREIGG
GREIGG & GREIGG P.L.L.C.
1423 POWHATAN STREET, UNIT ONE
ALEXANDRIA, VA 22314

EXAMINER

ROSENAU, DEREK JOHN

ART UNIT PAPER NUMBER

2834

DATE MAILED: 10/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/538,914	Applicant(s) SCHOOR, ULRICH	
	Examiner Derek J. Rosenau	Art Unit 2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 16, 20 and 24 is/are allowed.
- 6) ☒ Claim(s) 9-15, 19, 21, 23, 25 and 26 is/are rejected.
- 7) ☒ Claim(s) 17, 18 and 22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>7/21/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings were received on 7/21/06. These drawings are accepted.

Claim Objections

2. Claims 21 and 22 recite the limitation "the tolerance-encumbered shape." There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawazoe (US 6661158).
5. With respect to claim 9, Kawazoe discloses a piezoelectric actuator (Fig 15) comprising a multilayered structure of piezoelectric layers (Fig 1B, item 11) with inner electrodes (items 21 and 22) interposed between the piezoelectric layers, and outer electrodes (items 31 and 32), and layers of an adhesive band of insulating material (item 4) contacting the inner electrodes on alternating sides, wherein regions between the outer electrodes are provided with suitable insulation (column 4, lines 2-10), the insulation being a layer being a layer covering over a predetermined region between the outer electrodes (Fig 15), and in a tension free manner (column 4, lines 2-10).

Although, Kawazoe does not disclose expressly that the insulation is a layer covering only precisely the region between the outer electrodes, it has been held it would have been obvious to a person of ordinary skill in the art to eliminate the insulation on the outer electrodes, as the device would perform the same function without this material (In re Karlson 136 USPQ 184). Therefore, at the time of invention, it would have been obvious to a person of ordinary skill in the art to eliminate the insulating material covering the outer electrodes of Kawazoe for the benefit of reducing the amount of insulating material required to from the device.

6. With respect to claim 11, Kawazoe discloses the piezoelectric actuator according to claim 9, wherein the band or adhesive tape (item 4) is comprised of a precisely measured, prefabricated material (column 7, lines 33-36).

7. Claims 10, 12-15, 19, 23, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawazoe in view of Kishimoto (US 6956166).

8. With respect to claim 10, Kawazoe discloses the piezoelectric actuator according to claim 9

Kawazoe does not disclose expressly that the adhesive band is an adhesive tape.

Kishimoto teaches a piezoelectric device in which insulating adhesive tape is used to electrically insulate the SAW device.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to combine the adhesive tape of Kishimoto with the piezoelectric actuator of

Kawazoe for the benefit of creating a less complicated method of manufacturing the insulation layer.

9. With respect to claim 12, the combination of Kawazoe and Kishimoto discloses the piezoelectric actuator according to claim 10. Kawazoe discloses that the band or adhesive tape (item 4) is comprised of a precisely measured, prefabricated material (column 7, lines 33-36).

10. With respect to claim 13, Kawazoe discloses a method of producing a piezoelectric actuator according to claim 9.

Kawazoe does not disclose expressly the method comprising sticking or rolling the band in place in a bubble-free manner.

While Kishimoto does not discuss applying the adhesive tape in a bubble-free manner, it would be obvious to do so in order to create an effective bond to the surface of the device.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to combine the adhesive tape of Kishimoto with the piezoelectric actuator of Kawazoe for the benefit of creating a less complicated method of manufacturing the insulation layer.

11. With respect to claim 14, the combination of Kawazoe and Kishimoto discloses a method for producing a piezoelectric actuator according to claim 10. While Kishimoto does not discuss applying the adhesive tape in a bubble-free manner, it would be obvious to do so in order to create an effective bond to the surface of the device.

12. With respect to claim 15, Kawazoe discloses a method for producing a piezoelectric actuator according to claim 11.

Kawazoe does not disclose expressly the method comprising sticking or rolling the band in place in a bubble-free manner.

While Kishimoto does not discuss applying the adhesive tape in a bubble-free manner, it would be obvious to do so in order to create an effective bond to the surface of the device.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to combine the adhesive tape of Kishimoto with the piezoelectric actuator of Kawazoe for the benefit of creating a less complicated method of manufacturing the insulation layer.

13. With respect to claim 19, the combination of Kawazoe and Kishimoto discloses the method according to claim 13. Kishimoto discloses that the band is applied through local or general area heating and/or pressure or rolling. While Kishimoto does not discuss applying the adhesive tape in this manner, it is well known in the art to apply tape by local or general area pressure or rolling.

14. With respect to claim 23, the combination of Kawazoe and Kishimoto discloses the method according to claim 13. Kishimoto discloses that the band is supplied in the form of a strip on a roll and is cut to length before or during application onto the piezoelectric actuator. While Kishimoto does not disclose expressly that the band is supplied on a roll and cut to length before or during application to the device, it is well

known that tape is supplied in the form of a strip on a roll, and that it would be cut to length before or during application of the tape.

15. With respect to claim 25, the combination of Kawazoe and Kishimoto discloses the method according to claim 19. Kishimoto discloses that the band is supplied in the form of a strip on a roll and is cut to length before or during application onto the piezoelectric actuator. While Kishimoto does not disclose expressly that the band is supplied on a roll and cut to length before or during application to the device, it is well known that tape is supplied in the form of a strip on a roll, and that it would be cut to length before or during application of the tape.

16. Claims 21 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawazoe in view of Kishimoto in further view of Kondo (US 5252883).

17. With respect to claim 21, the combination of Kawazoe and Kishimoto discloses the method according to claim 19.

Neither Kawazoe nor Kishimoto disclose expressly a tolerance-encumbered shape of the corners or edges that is subjected to a shaping procedure at least at the corners or edges of the piezoelectric actuator.

Kondo teaches a piezoelectric actuator having a tolerance-encumbered shape of the corners or edges that is subjected to a shaping procedure at least at the corners or edges of the piezoelectric actuator (Fig 10).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to combine the angle corners of the actuator of Kondo with the piezoelectric

device of Kawazoe as modified by Kishimoto for the benefit of extending the life of the actuator (column 6, lines 49-61 of Kondo).

18. With respect to claim 26, the combination of Kawazoe, Kishimoto, and Kondo discloses the method according to claim 21. Kishimoto discloses that the band is supplied in the form of a strip on a roll and is cut to length before or during application onto the piezoelectric actuator. While Kishimoto does not disclose expressly that the band is supplied on a roll and cut to length before or during application to the device, it is well known that tape is supplied in the form of a strip on a roll, and that it would be cut to length before or during application of the tape.

Allowable Subject Matter

19. Claims 16, 20, and 24 are allowed.

20. The following is an examiner's statement of reasons for allowance: the prior art does not disclose or suggest "the step of melting, vulcanizing, or sintering the band in place" in combination with the remaining claim elements.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

21. Claims 17 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

22. The following is a statement of reasons for the indication of allowable subject matter: the prior art does not disclose or suggest "the step of melting, vulcanizing, or sintering the band in place" in combination with the remaining claim elements.

Response to Arguments

23. Applicant's arguments filed 7/21/06 have been fully considered but they are not persuasive. Applicant argues that the insulation layer of Kawazoe is disposed in a stretched fashion. However, the cited section of Kawazoe (column 4, lines 2-5) states that the abutment members are brought into contact with the end faces of the piezoelectric device in a stretching direction of the piezoelectric device and that the coating is formed on the abutment members and piezoelectric device. Therefore, the phrase "stretching direction" is in reference to the piezoelectric device, not the insulation layer, and is simply referring to the direction in which the actuator stretches during its operation.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Derek J. Rosenau whose telephone number is 571-272-8932. The examiner can normally be reached on Monday thru Thursday 7:00-5:30.

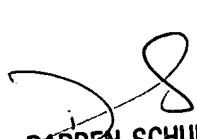
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on 571-272-2044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2834

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Derek J Rosenau
Examiner
Art Unit 2834

DJR
9/25/06


DARREN SCHUBERG
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800